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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/701,270	11/04/2003	David N. Schmaling	67,008-080;S-5643	4996
26096	7590	03/31/2005	EXAMINER	
CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD SUITE 350 BIRMINGHAM, MI 48009			RAEVIS, ROBERT R	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 03/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/701,270	Applicant(s) SCHMALING ET AL.	
	Examiner Robert R. Raevis	Art Unit 2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.  
     4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 23 and 24 is/are allowed.
- 6) ☒ Claim(s) 14-17, 20-22, 25-30 is/are rejected.
- 7) ☒ Claim(s) 18 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                                    | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Claims 14-17,20-22,25-30 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Baird et al.

Baird et al teach (Figure 9) a method of determining defects within a composite structure, including: affixing a seal 91 assembly to a first portion of the skin of an aircraft composite structure, affixing an attachment ("two vacuum pads" on col. 9, lines 37-38) to a second portion (note, that the vacuum pads and seal can not occupy the same space at the same time, and thus are necessarily located at different portions) of the skin of the composite, displacing the attachment relative to the seal assembly (col. 10, lines 9-15) (movement ("moved" (col. 10, line 13) of levers causes a "load" (col. 10, line 12) on the fuselage which is a "thin metal" (col. 10, line 25) structure which results in a "slight distortion" (col. 4, line 37)/"significant deformation" (col. 4, lines 59-60) which is a deflection, however so slight), and relating the steps with information on the film to determine a defect type, including fractures, delaminations and weak bonding which proved for abnormal fringe patterns (col. 7, lines 55-64).

Baird does not state that the composite is of the nature that includes a "core" composite structure.

As to claims 14,22, Baird's aircraft composite structure is representative of all aircraft structure, suggestive of "core" composite, and thus is inherent. In the alternative, Baird's aircraft composite structure suggests testing any known aircraft composite structure, such as that described on pages 1-2 of Applicant's written specification.

As to claim 15, the vacuum pads require a vacuum in the displacement step.

As to claim 16, note Baird's "change the load" (col. 10, line 12) teaching, which relates to variation in path length as described on col. 7, lines 47-64.

As to claim 17, variation in path length with changes in load are the result of stiffness variation.

As to claim 20, note that Baird varies the load to form fringes on col. 10, lines 10-15, and that a first and second location may necessarily be the same location.

As to claim 21, note the vacuum source 40 and seal 91.

As to claim 25, "crack" detection picks up on a skin disbond. (See "detection of non-bonded areas" (col. 4, line 12).

As to claim 27, either the seal 91 is an O-ring, suggestive of an annular section, or it would have been obvious to employ a circular box 90 (resulting in an annular ring) to necessarily reduce the volume of the box permitting for a reduced volume and thus less vacuum that need be applied to successfully operate the test device.

As to claims 26, 28, the "attachments" to apply the load need be attached on the side of the fuselage 98 opposite the plate 93 (and thus within the seal 91), or just outside of the perimeter of the plate 93, and thus still within the seal 91 boundry. In either manner, stress is applied to the region under test, as called for in Baird.

As to claims 29,30, the fringes are caused due to "variations...in the path lengths of the beams traveling between the ...emulsion and the surface of the fuselage, and reflected back to the emulsion" (col. 6, lines 57-60), indicative of measurement of a displacement.

Claims 18,19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Please cancel all non elected claims in any response to this Final Office action.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert R. Raevis whose telephone number is 571-272-2204. The examiner can normally be reached on Monday to Friday from 5:30am to 3pm. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Art Unit: 2856

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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